

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Currently amended) A wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station apparatus which communicates with the remote apparatuses using a given plurality of wavelengths, wherein each of the said remote apparatuses comprises:

wavelength selecting means which selects a wavelength;

a wavelength separating device means which separates, according to a wavelength control signal, a an optical signal of a selected wavelength from an optical signal including a the given plurality of wavelengths;

a signal output device means which outputs a reception status signal indicating whether or not a separated wavelength optical signal is received from the wavelength separating device means; and

a wavelength control device means which generates the wavelength control signal to the wavelength separating devices and receives the reception status signal to determine whether a signal corresponding to the separated wavelength is being received, and, if not, sets the separated wavelength as the wavelength to be used in the remote apparatus, but if it is determined that a signal corresponding to the separated wavelength is being received, then generating a new wavelength control signal to control the wavelength separating device to separate a different wavelength from the given plurality of wavelengths until the wavelength control device determines that no signal corresponding to the separated wavelength is being received determines whether the selected wavelength is a used wavelength or an unused wavelength on the basis of the reception status signal, and controls the wavelength selecting means until the unused wavelength is selected by the wavelength selecting means; and

———optical transmitting means which transmits an optical signal of the unused wavelength determined by said wavelength control means.

2-12. (Canceled)

13. (Currently amended) A remote apparatus in a wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station apparatus and communication is performed among the remote apparatuses and the station apparatus using a given plurality of wavelengths, the said remote apparatus comprising:

wavelength selecting means which selects a wavelength;

a wavelength separating device means which separates, according to a wavelength control signal, a an optical signal of a selected wavelength from an optical signal including a the given plurality of wavelengths;

a signal output device means which outputs a reception status signal indicating whether or not a the separated wavelength optical signal is received from the wavelength separating device means; and

a wavelength control device means which generates the wavelength control signal to the wavelength separating device and receives the reception status signal to determine whether a signal corresponding to the separated wavelength is being received, and, if not, sets the separated wavelength as the wavelength to be used in the remote apparatus, but if it is determined that a signal corresponding to the separated wavelength is being received, then generating a new wavelength control signal to control the wavelength separating device to separate a different wavelength from the given plurality of wavelengths until the wavelength control device determines that no signal corresponding to the separated wavelength is being received determines whether the selected wavelength is a used wavelength or an unused wavelength on the basis of the reception status signal, and controls the wavelength selecting means until the unused wavelength is selected by the wavelength selecting means; and

—— optical transmitting means which transmits an optical signal of the unused wavelength determined by the wavelength control means.

14-19. (Canceled)

20. (Currently amended) A method for adding a remote apparatus to a wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station apparatus and communication is performed

among the remote apparatuses and the station apparatus using a given plurality of wavelengths, the said method comprising:

selecting a wavelength;

transmitting from the station apparatus one or more wavelengths of the given plurality of wavelengths to the plurality of remote apparatuses and the remote apparatus to be added to said wavelength division multiplexing transmission system;

separating an optical signal of a selected wavelength from the given form an optical signal including a plurality of wavelengths, said step of separating being performed by a wavelength separating device at the remote apparatus according to a wavelength control signal;

outputting a reception status signal indicating whether or not the a separated wavelength output signal is received at the remote apparatus; and

determining whether the selected wavelength is a used wavelength or an unused wavelength on the basis of said reception status signal;

controlling generation of a wavelength control signal used in said separating step based on said reception status signal output in said outputting step, said controlling step

determining whether a signal corresponding to the separated wavelength is being received, and, if not, setting the separated wavelength as the wavelength to be used in the remote apparatus,

but if it is determined that a signal corresponding to the separated wavelength is being received, then

generating a new wavelength control signal to control the wavelength separating device at the remote apparatus to separate a different wavelength from the given plurality of wavelengths until it is determined that no signal corresponding to the separated wavelength is being received the wavelength separating means until the unused wavelength is selected by the selecting step; and once a separated wavelength that is not received at said remote apparatus is determined in said controlling step,

transmitting a signal having said separated wavelength from said remote apparatus to said station apparatus, and

updating said one or more wavelengths of the given plurality of

wavelengths transmitted from said station apparatus to the plurality of remote apparatuses to include the separated wavelength an optical signal of the unused wavelength determined by the determining step.

21. (Canceled)

22. (New) The wavelength division multiplexing transmission system of claim 1, wherein the station apparatus transmits signals to the plurality of remote apparatuses using only those wavelengths used by remote apparatuses currently connected to the station apparatus.

23. (New) The wavelength division multiplexing transmission system of claim 1, wherein each remote apparatus further comprises:

a remote apparatus transmitter controlled by the wavelength control device, the remote apparatus transmitter initially not outputting signals until the wavelength control device generates a control signal to the remote apparatus transmitter, the remote apparatus transmitter, in response to the control signal, outputting a signal at the wavelength to be used by the remote apparatus.

24. (New) The wavelength division multiplexing transmission system of claim 1, wherein communication between the station apparatus and the plurality of remote apparatuses is by optical signals, connections between the station apparatus and the remote apparatuses being made by optical couplers in a star topology.

25. (New) The remote apparatus of claim 13, further comprising:

a remote apparatus transmitter controlled by the wavelength control device, the remote apparatus transmitter initially not outputting signals until the wavelength control device generates a control signal to the remote apparatus transmitter, the remote apparatus transmitter, in response to the control signal, outputting a signal at the wavelength to be used by the remote apparatus.

26. (New) A method for setting a wavelength to be used by a remote apparatus in a wavelength division multiplexing transmission system in which a plurality of

remote apparatuses are connected to a station apparatus and communication is performed among the remote apparatuses and the station apparatus using a given plurality of wavelengths, the method comprising:

- separating a wavelength from one or more wavelengths of the given plurality of wavelengths transmitted by a transmitter of the station apparatus, said step of separating being performed according to a wavelength control signal;

- outputting a reception status signal indicating whether or not the separated wavelength is received; and

- controlling generation of a wavelength control signal used in said separating step based on said reception status signal output in said outputting step, said controlling step

- determining whether a signal corresponding to the separated wavelength is being received, and, if not, setting the separated wavelength as the wavelength to be used in the remote apparatus,

- but if it is determined that a signal corresponding to the separated wavelength is being received, then

- generating a new wavelength control signal to control the wavelength separating device at the remote apparatus to separate a different wavelength from the given plurality of wavelengths until it is determined that no signal corresponding to the separated wavelength is being received.

27. (New) The method of claim 26, further comprising the step of:

- outputting a signal from a remote apparatus transmitter at the separated wavelength set as the wavelength to be used by said remote apparatus in said controlling step.

28. (New) A wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station apparatus which communicates with the remote apparatuses using a given plurality of wavelengths, wherein each of the remote apparatuses comprises:

- a wavelength separating device which separates, according to a wavelength control signal, a wavelength from the given plurality of wavelengths;

- a signal output device which outputs a reception status signal indicating

whether or not the separated wavelength is received from the wavelength separating device; and

a wavelength control device which generates the wavelength control signal to the wavelength separating device and receives the reception status signal to determine whether a signal corresponding to the separated wavelength is being received and, if so, sets the separated wavelength as the wavelength to be used by the remote apparatus, but if it is determined that no signal corresponding to the separated wavelength is being received, then generating a new wavelength control signal to control the wavelength separating device to separate a different wavelength from the given plurality of wavelengths until the wavelength control device determines that a signal corresponding to the separated wavelength is being received.

29. (New) The wavelength division multiplexing transmission system of claim 28, wherein each of the remote apparatuses is connected to the station apparatus by a port corresponding to one of the given plurality of wavelengths.

30. (New) The wavelength division multiplexing transmission system of claim 28, further comprising:

a remote apparatus transmitter controlled by the wavelength control device, the remote apparatus transmitter initially not outputting signals until the wavelength control device generates a control signal to the remote apparatus transmitter, the remote apparatus transmitter, in response to the control signal, outputting a signal at the wavelength to be used by the remote apparatus.

31. (New) The wavelength division multiplexing transmission system of claim 28, wherein communication between the station apparatus and the plurality of remote apparatuses is by optical signals, connections between the station apparatus and the remote apparatuses being made by multiplexer and demultiplexer in a tree topology.

32. (New) A remote apparatus in a wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station

apparatus and communication is performed among the remote apparatuses and the station apparatus using a given plurality of wavelengths, the remote apparatus comprising:

- a wavelength separating device which separates, according to a wavelength control signal, a wavelength from the given plurality of wavelengths;

- a signal output device which outputs a reception status signal indicating whether or not the separated wavelength is received from the wavelength separating device; and

- a wavelength control device which generates the wavelength control signal to the wavelength separating device and receives the reception status signal to determine whether a signal corresponding to the separated wavelength is being received and, if so, sets the separated wavelength as the wavelength to be used by the remote apparatus, but if it is determined that no signal corresponding to the separated wavelength is being received, then generating a new wavelength control signal to control the wavelength separating device to separate a different wavelength from the given plurality of wavelengths until the wavelength control device determines that a signal corresponding to the separated wavelength is being received.

33. (New) The remote apparatus of claim 33, further comprising:

- a remote apparatus transmitter controlled by the wavelength control device, the remote apparatus transmitter initially not outputting signals until the wavelength control device generates a control signal to the remote apparatus transmitter, the remote apparatus transmitter, in response to the control signal, outputting a signal at the wavelength to be used by the remote apparatus.

34. (New) A method for setting a wavelength to be used by a remote apparatus in a wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station apparatus and communication is performed among the remote apparatuses and the station apparatus using a given plurality of wavelengths, the method comprising:

- separating a wavelength from the given plurality of wavelengths transmitted by a transmitter of the station apparatus, said step of separating being

performed according to a wavelength control signal;

outputting a reception status signal indicating whether or not the separated wavelength is received; and

controlling generation of a wavelength control signal used in said separating step based on said reception status signal output in said outputting step, said controlling step

determining whether a signal corresponding to the separated wavelength is being received, and, if so, setting the separated wavelength as the wavelength to be used in the remote apparatus,

but if it is determined that no signal corresponding to the separated wavelength is being received, then

generating a new wavelength control signal to control the wavelength separating device at the remote apparatus to separate a different wavelength from the given plurality of wavelengths until it is determined that a signal corresponding to the separated wavelength is being received.

35. (New) The method of claim 34, further comprising the step of

outputting a signal from a remote apparatus transmitter at the separated wavelength set as the wavelength to be used by said remote apparatus in said controlling step.

36. (New) A method for adding a remote apparatus to a wavelength division multiplexing transmission system in which a plurality of remote apparatuses are connected to a station apparatus and communication is performed among the remote apparatuses and the station apparatus using a given plurality of wavelengths, the method comprising:

transmitting from the station apparatus a multiplexed signal having one or more wavelengths of the given plurality of wavelengths to the plurality of remote apparatuses and the remote apparatus to be added to said wavelength division multiplexing transmission system, one of said one or more wavelengths transmitted in said transmitting step not being in use by any of said plurality of remote apparatuses;

demultiplexing said multiplexed signal and providing each remote

apparatus of said plurality of remote apparatuses with one of said one or more wavelengths of the given plurality of wavelengths;

separating a wavelength from the given plurality of wavelengths, said step of separating being performed by a wavelength separating device at the remote apparatus according to a wavelength control signal;

outputting a reception status signal indicating whether or not the separated wavelength is received at the remote apparatus;

controlling generation of a wavelength control signal used in said separating step based on said reception status signal output in said outputting step, said controlling step

determining whether a signal corresponding to the separated wavelength is being received, and, if so, setting the separated wavelength as the wavelength to be used in the remote apparatus,

but if it is determined that no signal corresponding to the separated wavelength is being received, then

generating a new wavelength control signal to control the wavelength separating device at the remote apparatus to separate a different wavelength from the given plurality of wavelengths until it is determined that a signal corresponding to the separated wavelength is being received; and

once a particular separated wavelength that is received at said remote apparatus is determined in said controlling step,

transmitting a signal having said separated wavelength from said remote apparatus to said station apparatus, and

updating said one or more wavelengths of the given plurality of wavelengths transmitted from said station apparatus to include the separated wavelength.